TITLE: "Irrigation Scheduling, Freeze Warning and Soil Salinity Detecting"

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STATEMENT OF PROGRESS:

Cameron County

Bendix 24-channel multispectral scanner (MSS) aircraft data (Mission 258) recorded on computer compatible tape (CCT) are being investigated by A. J. Richardson as a part of the saline soil study in Cameron County (Weslaco Skylab MPR #9; September, 1974). The aircraft CCT coverage collected on December 11, 1973, was incomplete for the Paredes Line Road (north to south) and Farm Road 510 (east to west) at 5,700 feet (Figure 1) and 16,000 feet (Figure 2).

Coverage for 25 of the 34 CCT's for Mission 258 are shown as a series of numbered rectangles (one CCT per rectangle) superimposed on the two roads used to mark the aircraft flight lines (Figures 1 and 2). Six CCT's, tapes 3, 18, 19, 21, 24, and 33, could not be read by the computer because of poorly recorded data records. Three other CCT's, tapes 20, 22, and 23, were duplicates of the coverage given by tapes 9, 11, and 12, respectively (Figure 1). Areas of Figures 1 and 2 that are cross-hatched represent missing coverage due to CCT's that could not be read or CCT's that were not provided by NASA Houston.

Only six CCT's were needed at 16,000 feet altitude (Figure 1) for about the same study area coverage as compared to 19 CCT's needed at 5,700 feet (Figure 2). Per pixel resolution recorded on the original 34 CCT's at 5,700 feet is 0.003 acre per pixel, and at 16,000 feet it is 0.024 acre per pixel. For data processing convenience, the 25 of 34 CCT's that could be read were summarized by 4 X 4 pixel matrices to compress the original information (16 to 1 data resolution reduction) onto two new CCT's. The per pixel resolution recorded on the two new CCT's at 5,700 feet is 0.048 acre per pixel and at 16,000 feet it is 0.384 acre per pixel.

Presently, Bendix 24-channel MSS data are being statistically analyzed for detection of saline areas, and they will be correlated with SKYLAB MSS data when it is received.

Starr County

Vegetation has been characterized on a duplication of the seven range sites.

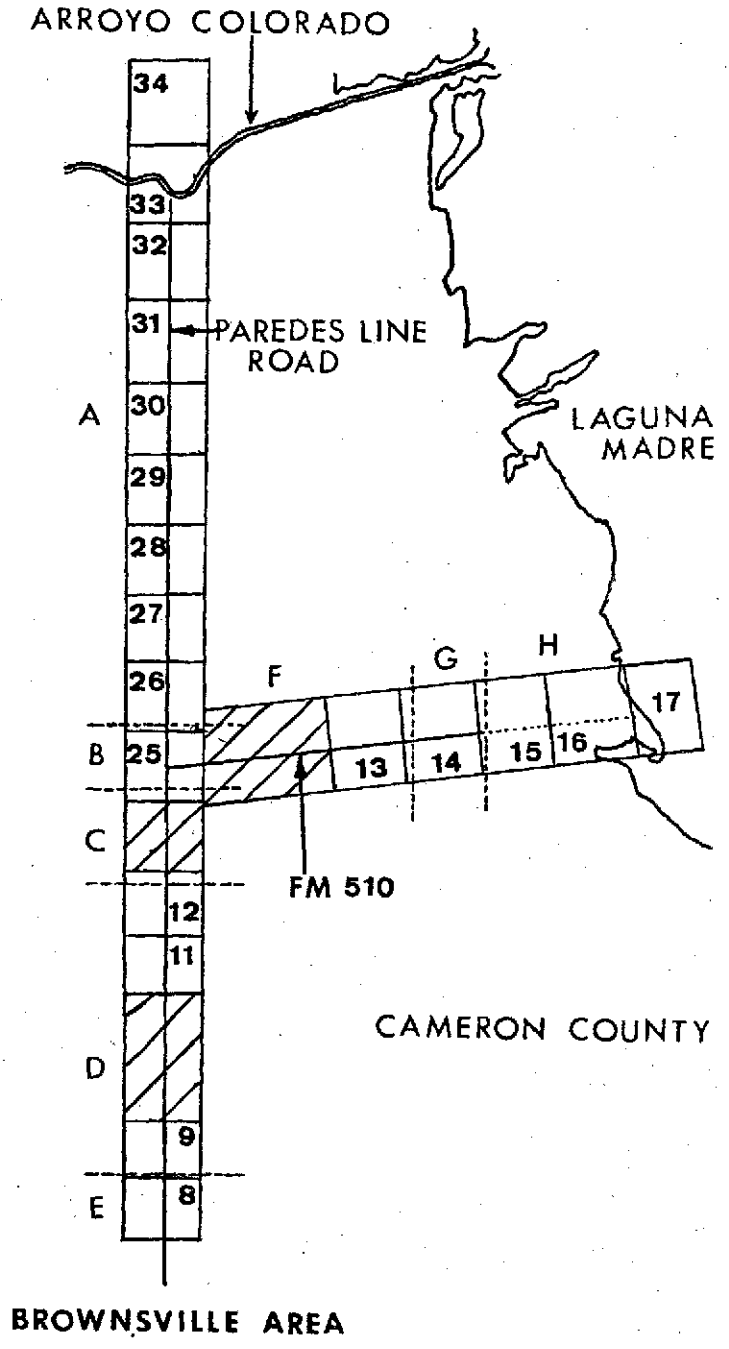

Figure 1. Bendix 24-channel multispectral scanner computer compatible tape (CCT) coverage of Paredes Line Road and Farm Road 510 on December 11, 1973, at 5,700 feet. Letters indicate saline soil areas (see Weslaco Skylab MPR #9; September, 1974) and numerals indicate CCT's. Cross-hatched areas are missing coverage due to faulty or missing CCT's.

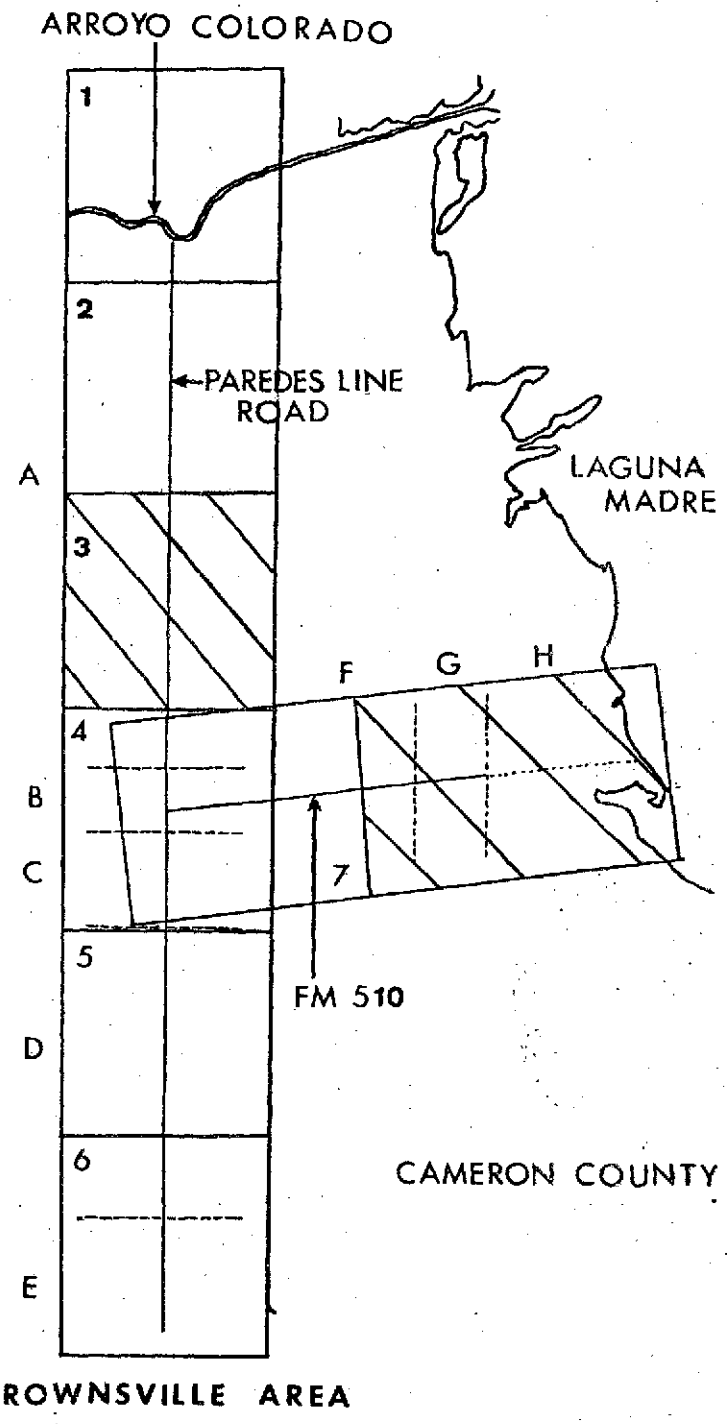

Figure 2. Bendix 24-channel multispectral scanner computer compatible tape (CCT) coverage of Paredes Line Road and Farm Road 510 on December 11, 1973, at 16,000 feet. Letters indicate saline soil areas (see Weslaco Skylab MPR #9; September, 1974) and numerals indicate CCT's. Cross-hatched areas are missing coverage due to faulty or missing CCT's.